PATENT

## REMARKS

The following remarks are submitted in reply to the Office Action dated March 10, 2004.

### I. Rejection of Claims 1-5 and 9-11

#### Claims 1-5

The Examiner has rejected Claims 1-5 and 9-11 under 35 U.S.C. §102(b) as being anticipated by Schieve, et al. (U.S. Patent No. 5,398,333). The Applicant traverses such rejection for the reasons set forth in greater detail below.

In rejecting the aforementioned claims, the Examiner has either misinterpreted or ignored recited claim limitations, misunderstood the claim limitations and misquoted those portions of Schieve, et al.; thereby making it difficult for the Applicant to understand, and consequently respond to the current Office Action as the Examiner has not provided Applicant's with a pointer within Schieve, et al. as to where the recited limitations are disclosed. As such, the Applicant submits that the rejection of the aforementioned claims is improper and should be withdrawn. On the other hand, if after reviewing and reconsidering the following arguments, the Examiner would like to further clarify his position, the Applicant respectfully requests that such clarification be presented in a subsequent, non-final Office Action.

In rejecting Claim 1, for example, the Examiner states on page 8, paragraph 23 that:

> "...the applicant argues that "the instant invention uses the otherwise non-used diagnostic or other suitable programs are maintained and executed when the larger system for which the nonvolatile memory forms a part is not functioning properly or when diagnostic operations need to be performed." (1st full paragraph of page 7 of paper number 4)"

and then proceeds to state that:

> "...it is noted that the features upon which applicant relies (i.e., using the otherwise non-used diagnostic or other suitable programs are maintained and executed when the larger system for which the nonvolatile memory forms a part is not functioning properly or when diagnostic

PAGE 8/19 * RCVD AT 9/10/2004 8:20:26 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-2/0 * DNIS:7467238 * CSID:+4085701044 * DURATION (mm-ss):06-12

PATENT

operations need to be performed) are not recited in the rejected
claim(s:...."

However, the Applicant would like to point out that the Examiner has mis-quoted those
portions of the Applicant's response, and has seemingly ignored the point of the
argument. As the rejection is based on a mis-quote of and/or misunderstanding of the
claim language and previously submitted argument, the Applicant submits that the
current rejection is improper and should be withdrawn.

More specifically, the Applicant brings to the Examiner's attention the argument
for the allowability of Claim 1 as previously submitted:

> "...the instant invention uses the otherwise non-used portion of
> nonvolatile flash memory as a diagnostic disk drive where, for example,
> diagnostic or other suitable programs are maintained and executed when
> the larger system for which the nonvolatile memory forms a part is not
> functioning properly or when diagnostic operations need to be
> performed..."

Thus, as alluded to in the previous response (Amendment A) and reproduced above, the
present invention uses the "otherwise non-used portion of non-volatile flash memory as a
diagnostic disk drive" where diagnostic or other suitable programs are maintained and
executed when the larger system is not functioning properly or when diagnostic
operations need to be performed. In other words, the invention utilizes available
nonvolatile RAM space normally reserved for the BIOS as a diagnostic disk drive, which
is recited in Claim 1. This is in complete contrast to the responsive argument made by
the Examiner to support his continued rejection. Accordingly, the rationale used to
maintain the current rejection is based on improper grounds and should be withdrawn.

Notwithstanding the improper basis for maintaining the current rejection, the
Examiner has also apparently misinterpreted the pending claim language and has cited
portions of Schreve, et al. that do not support the assertion submitted by the Examiner.
More specifically, in rejecting Claim 1, the Examiner states, for example, on page 2,
paragraph 2a:

> "...Regarding the limitation of modifying the EFI to include an EFI driver
> that operates to configure available flash ROM space normally reserved
> for the BIOS as a diagnostic disk drive, Schieve discloses a system with

means to a have a diagnostic routine embedded in memory that resides in non-volatile memory. (Lines 8-12 of Column 3)..."

However, that section of Schieve, et al. states:

"...Even so, the diagnostic routines of the present invention can still be invoked and fully executed.
Another object of the present invention is to allow the diagnostics routines to take direction from ..."

It does not mention an EFI (Extensible Firmware Interface) or relate to "...an EFI driver that operates to configure available nonvolatile random access normally reserved for the BIOS as a diagnostic disk drive..." as defined in Claim. In fact, Schieve, et al. clearly states, for example, at col. 2, line 68-col. 3, line 2 that:

"...the routines to be stored in memory in a location other than BIOS, which is space-limited..."

Thus, as can be understood from this discussion, the programs or routines of Schieve, et al. are stored in memory locations other than with the BIOS for space reasons. This is in direct contrast to the teachings of the claimed invention which calls for determining and using the portions of memory (e.g. BIOS) that are not being used by the BIOS. Although Schieve, et al. does state that "...the present invention allows storage of the diagnostic routines anywhere in non-volatile memory..." (See, col. 3, lines 3-4), using an EFI driver to configure available non-volatile random access memory space normally reserved for the BIOS as a diagnostic drive is present in Schieve, et al. In fact, the only recitation of such device or functionality is provided by the Applicant's disclosure, which cannot be used as a basis for rejecting the claimed invention.

In corresponding manner, as Schieve, et al. does not mention or disclose an EFI or EFT driver, in contrast to the Examiner's assertion, Schieve, et al. also does not disclose

"...storing the modified Extensible Firmware Interface and the EFI driver in the nonvolatile random access memory..."

as recited in Claim 1. Consequently, at least the above-noted limitations are not disclosed in Schieve, et al.

PATENT

Substantively, Schieve, et al. does not disclose the invention as defined in Claim 1. More specifically, the present invention is directed to a system and method of using available nonvolatile random access or flash memory space as a diagnostic drive for a computer system. By implementing the novel methodology of the present invention, additional resources, for example, using additional system resources such a system RAM, ROM or other memory resources do not have to be used to provide a storage location and execution point for software, such as diagnostic programs. An exemplary method for implementing the aforementioned functionality is defined in Claim 1, which includes the following limitations:

> "...modifying the Extensible Firmware Interface to include an EFI driver that operates to configure available nonvolatile random access memory space normally reserved for the BIOS as a diagnostic disk drive..."

> "...when the computer system is initialized, configuring the available space in the flash memory that is not allocated to the firmware as a diagnostic disk drive..." and

> "...loading one or more diagnostic programs into the diagnostic drive..."

More specifically, the instant invention uses the otherwise non-used (e.g. available) portion of nonvolatile flash memory as a diagnostic disk drive where, for example, diagnostic or other suitable programs are maintained and executed when the larger system for which the nonvolatile memory forms a part is not functioning properly or when diagnostic operations need to be performed. The Schieve, et al. reference does not disclose or otherwise teach or suggest such functionality. Consequently, Schieve, et al. does not anticipate the invention as suggested by the Examiner.

As discussed in greater detail above, Schieve, et al. does not mention the presence or operation of an EFI or EFI driver. As such, the first limitation of Claim 1 is not disclosed in Schieve, et al. As Schieve, et al. does not disclose the presence or operation of an EFI driver, the second limitation:

> "...storing the modified Extensible Firmware Interface and the EFI driver in the nonvolatile random access memory..."

is therefore, also not disclosed in Schieve, et al. Consequently, as the determination and providing of a diagnostic drive (via the EFI and EFI driver) is not disclosed, the

(00-1010) Resp. to OA dated Mar. 10, 2003          8

limitation of "...loading one or more diagnostic programs into the diagnostic drive..." as recited in Claim 1 is also not disclosed by Schieve, et al.

Moreover, contrary to the Examiner's assertion, Schieve, et al. does not disclose or otherwise teach or suggest the step of "...configure available nonvolatile random access memory space normally used for the BIOS as a diagnostic disk drive.." as defined in Claim 1 for use as a location to maintain the diagnostic programs as the "...boot loading routine decompresses a first diagnostic routine from the flash ROM into video RAM..."for execution (See, for example, col. 5, lines 58-60). Thus, Schieve, et al. discloses that the diagnostic programs, which are maintained in a compressed state in ROM, are transferred to RAM for execution; not loaded and subsequently executed from the diagnostic disk drive portion of the flash memory or space normally reserved for the BIOS as defined in Claim 1. Accordingly, at least this limitation of Claim 1 is not disclosed in Schieve, et al. contrary to the assertion of the Examiner.

Additionally, as the methodology of Schieve, et al. calls for the first diagnostic, and presumably, additional programs being decompressed and transferred to RAM for execution, Schieve, et al. does not disclose or otherwise teach or suggest "...when the computer system is initialized, configuring the available space in the flash memory that is not allocated to the firmware as a diagnostic disk drive..." as recited in Claim 1 as such configuring is not required in the multi-memory use system disclosed in Schieve, et al. Thus, at least this limitation of Claim 1 is not disclosed in Schieve, et al. contrary to the assertions of the Examiner.

Consequently, as the Examiner has not provided the Applicant with a pointer within Schieve. et al. as to where the claimed limitations are present, the Applicant submits that the rejection of Claim 1 is improper and should be withdrawn. Additionally, as none of the aforementioned limitations of Claim 1 is disclosed or otherwise taught or suggested by Schieve, et al., the Applicant submits that Schieve, et al. does not anticipate the invention as defined in Claim 1. Accordingly, reconsideration of the rejection of Claim 1 is respectfully requested.

Claims 2-5 directly or indirectly depend upon and include all the limitations of Claim 1 and are allowable at least for the reasons set forth above with respect to Claim 1. Accordingly, reconsideration of the rejection of Claims 1-5 is respectfully requested.

(00-1010) Resp. to OA dated Mar. 10, 2003        9

PATENT

Claims 9-11

The improper rejection of Claim 1, as discussed above, is equally applicable to the rejection of Claim 9 and is incorporated in its entirety herein. Notwithstanding the improper rejection, Claim 9 defines subject matter that is allowable over the art of record as discussed in greater detail below.

Claim 9 is directed to a computer apparatus, including a limitation directed to an EFI driver that:

"...operates to configure available flash read-only memory space normally reserved for the BIOS as a diagnostic disk drive..." and

"...load one or more diagnostic programs into the diagnostic drive..."

Thus, Claim 9 defines a computer system including a flash memory, where the flash memory is configured by an EFI driver, for example, to store the BIOS code of the system with the remainder of the memory being used as a diagnostic drive to maintain and act as an execution point for diagnostic programs. Such a system is in direct contrast to the system disclosed in Schieve, et al. which requires a separate memory (e.g. video RAM) to execute the corresponding diagnostic programs (see, for example, col. 5, lines 58-60 and col. 6, lines 18-20). Thus, as Schieve, et al. does not disclose a system including the aforementioned limitation, and in fact, discloses a system that is in direct contrast to the claimed system, the Applicant submits that Schieve, et al. does not anticipate the invention as defined in Claim 9. Accordingly, reconsideration of the rejection of Claim 9 is respectfully requested.

Claims 10-11 depend upon and include all the limitations of Claim 9 and are allowable at least for the reasons set forth above with respect to Claim 9. Accordingly, reconsideration of the rejection of Claims 9-11 is respectfully requested.

II. Rejection of Claims 6 and 12

The Examiner has rejected Claims 6 and 12 under 35 U.S.C. §103(a) as being unpatentable over Schieve, et al. in view of Davis (U.S. Patent No. 5,844,986). The Applicant traverses such rejection for the reasons set forth in greater detail below.

(00-1010) Resp. to OA dated Mar. 10, 2003          10

PATENT

Claim 6 depends upon and includes the limitations of Claim 1 and is submitted to be allowable at least for the reasons set forth above with respect to Claim 1. Further, the teachings of Davis do not overcome the aforementioned shortcomings of Schieve, et al. as Davis does not disclose or otherwise teach or suggest, for example:

> "...configure available nonvolatile random access memory space normally reserved for the BIOS as a diagnostic drive..."

> "...when the computer system is initialized, configuring the available space in the flash memory that is not allocated to the firmware as a diagnostic disk drive..." and

> "...loading one or more diagnostic programs into the diagnostic disk drive..."

as defined in Claim 1, as Davis does not disclose the aforementioned functionality. Accordingly, reconsideration of the rejection of Claim 6 is respectfully requested.

Claim 12 depends upon and includes the limitations of Claim 9 and is submitted to be allowable at least for the reasons set forth above with respect to Claim 9. Further, the teachings of Davis do not overcome the aforementioned shortcomings of Schieve, et al. as Davis does not disclose, for example:

> "...configure available flash read-only memory space normally reserved for the BIOS as a diagnostic disk drive..." and

> "...load one or more diagnostic programs into the diagnostic disk drive..."

as defined in Claim 9, as Davis does not disclose the aforementioned limitations. Accordingly, reconsideration of the rejection of Claim 12 is respectfully requested.

III. Rejection of Claims 7-8 and 13-14

The Examiner has rejected Claims 7-8 and 13-14 under 35 U.S.C. §103(a) as being unpatentable over Schieve, et al. in view of Treu (U.S. Patent No. 5,245,615). The Applicant traverses such rejection for the reasons set forth in greater detail below.

Claim 7-8 directly or indirectly depend upon and include all the limitations of Claim 1 and are allowable at least for the reasons set forth above with respect to Claim 1. Further, the teachings of Treu do not overcome the aforementioned shortcomings of Schieve, et al. as Treu does not disclose, teach or suggest:

PATENT

> "...modifying the Extensible Firmware Interface to include an EFI driver that operates to configure available nonvolatile random access memory space normally reserved for the BIOS as a diagnostic disk drive..." and

> "...loading one or more diagnostic programs into the diagnostic disk drive..."

as defined in Claim 1. In fact, Treu specifically discloses that the NVRAM includes an error log maintained therein; diagnostic programs communicate with but are not present in the NVRAM. (See, for example, FIG. 3; col. 4, line 66-col. 5, line 4 and col. 3, lines 1-3 "...ROM 38 stores a POST program 40 and a BIOS 42..."). Thus, contrary to the Examiner's assertion, the structure and operation of the system disclosed in Treu is different (and not analogous) from the apparatus defined in Claim 1. More specifically, the combination of Schieve, et al. and Treu does not teach or suggest "...diagnostic disk drive space is used to store power on self test (POST) error logs in files..." as defined in Claim 7.

Additionally, the only place where the aforementioned limitations are present is in the Applicant's disclosure, which cannot be used as a basis to reject a Claim. MPEP2143.

Further, as neither Schieve, et al. nor Treu teach or suggest the aforementioned limitations, the combination of Schieve, et al. and Treu also does not teach or suggest the limitations defined in Claim 8.

Moreover, Treu at col. 8, lines 3-21 discloses the process undertaken when the disclosed system recovers from an error condition. As stated, for example, at col. 8, lines 12-18:

> "...If the error is not a critical error such that further operations can be continued perhaps in a degraded fashion, step 244 completes the POST and then loads or boots the OS in normal fashion...If step 242 determines the error is critical, then step 246 informs the user of such error if it is at all possible..."

Thus, given the above operational description, Treu also does not teach or suggest "...running the one or more diagnostic programs to correct the problem with the computer system..." as defined in Claim 1, which is incorporated in its entirely into

PATENT

Claims 7-8. Accordingly, reconsideration of the rejection of Claims 7-8 is respectfully requested.

Claims 3-14 directly or indirectly depend upon and include all the limitations of Claim 9 and are submitted to be allowable for the reasons set forth above with respect to Claim 9. More specifically, Claim 9, like Claim 1 above, includes limitations directed to:

> "...configure available flash read-only-memory space normally reserved for the BIOS as a diagnostic disk drive, load one or more diagnostic programs into the diagnostic disk drive..." and

> "...run the one or more diagnostic programs to correct the problem with the hard disk drive..."

As discussed in greater detail above, the combination of Schieve, et al. and Treu does not teach or sugges such combination of limitations. Consequently, the combination of Schieve, et al. and Treu does note render the invention as defined in Claim 9 obvious. Accordingly, reconsideration of the rejection of Claims 13-14 is respectfully requested.

## CONCLUSION

In view of the above amendments and remarks, it is respectfully submitted that Claims 1-14 are now in proper condition for allowance and such action is earnestly solicited.

The Commissioner is hereby authorized to charge any underpayments or credit any over payments to Deposit Account No. 16-1520 for any payment in connection with this communication, including any fees for extension of time, which may be required. The Examiner is invited to call the undersigned if such action might expedite the prosecution of this application.

Respectfully submitted,
PHOENIX TECHNOLOGIES LTD.

Date: 9/10/04         By: _____
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(00-1010) Resp. to OA dated Mar. 10, 2003         13

PATENT

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